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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/090,488

Applicant(s)

NOVICK, YORAM

Examiner

Christopher S. McCarthy

Art Unit

2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-136 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-136 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ⁰
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1.2 ⁰
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-58, 60-126, 128-136 are rejected under 35 U.S.C. 102(e) as being anticipated by Kern et al. U.S. Patent 6,463,501.

As per claim 1, Kern teaches a data backup and recovery system for use with at least one server interconnected with at least one storage device, said data backup and recovery system (column 3, lines 35-40; column 9, lines 21-37) comprising: at least one data recovery device (column 4, lines 40-45); at least one data recovery storage device associated with and controlled by said at least one data recovery device (column 4, lines 11-13, 29-45); and at least one data communication monitor for providing to said at least one data recovery device at least control information bearing an order stamp regarding data communications between corresponding ones of said at least one server and said at least one storage device (column 4, lines 40-45; column 5, lines 29-32), said at least one data recovery device being responsive to at least said control information bearing an order stamp for storing data on said at least one data recovery storage device in a manner which enables reconstruction of a representation of said data communications at a given earlier time but does not require that the data be sent to said at least one data recovery

device in a given order (column 5, lines 39-42; column 7, lines 12-35) or stored on said at least one data recovery storage device in a given order.

As per claim 2, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communication monitors are located other than only at said at least one storage device (column 4, lines 29-61).

As per claim 3, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 4, Kern teaches a data backup and recovery system according to claim 2 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 5, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one data recovery device is operative to receive said at least control information and to store data on said at least one data recovery storage device in parallel (column 4, lines 19-22, wherein, if the recovery device is at the secondary storage device then the primary data is received at the recovery device and the recovery storage device concurrently).

As per claim 6, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communications comprise data updates (column 3, lines 30-41).

As per claim 7, Kern teaches a data backup and recovery system according to claim 1 and wherein said reconstruction of a representation of said data communications at a given earlier time guarantees that if the order stamp of a first update is smaller than the order stamp of a second update, the second update is not stored on said at least one data recovery storage device

unless the first update is stored on said at least one data recovery storage device (column 7, lines 12-35).

As per claim 8, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communication monitors are associated with individual ones of said at least one server (column 4, lines 29-45).

As per claim 9, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communication monitors are associated with network elements of a storage area network (column 5, lines 20-21; column 9, lines 21-36; column 4, lines 29-45).

As per claim 10, Kern teaches a data backup and recovery system according to claim 1 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 11, Kern teaches a data backup and recovery system according to claim 10 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 12, Kern teaches a data backup and recovery system according to claim 10 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 13, Kern teaches a data backup and recovery system according to claim 1 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 14, Kern teaches a data backup and recovery system according to claim 1 and wherein said data communication monitors provide at least part of said data communications to said at least one data recovery storage device other than via said at least one data recovery device (column 3, lines 33-36; column 2, lines 58-60).

As per claim 15, Kern teaches a data backup and recovery system according to claim 1 and also comprising at least one LOG storage device wherein said at least one LOG storage device comprise at least control information bearing a time mark regarding data communications between corresponding ones of said first plurality of servers and said plurality of storage devices via said storage area network (column 4, lines 46-61, wherein, the journal with consistency groups of Kern is equivalent to a log device).

As per claim 16, Kern teaches a data backup and recovery system according to claim 15 and wherein said data communication monitors also store at least part of said data communications to said at least one LOG storage device (column 4, lines 46-61).

As per claim 17, Kern teaches a data backup and recovery system according to claim 16 and wherein said data communications stored to said at least one LOG storage device comprises data updates sent by said first plurality of servers to said second plurality of storage devices (column 4, lines 46-61).

As per claim 18, Kern teaches a data backup and recovery system according to claim 17 having said at least one storage device LOG such that if either said control information or said data communications or both are prematurely erased from said at least one data recovery device due to a failure or other event, said at least one data recovery device restores either said control

information or said data communications or both from said at least one storage device LOG (column 5, lines 53-60).

As per claim 19, Kern teaches a data backup and recovery system according to claim 18 and wherein said at least one data recovery device resumes its activities with said restored data from said at least one storage device LOG (column 5, lines 53-60).

As per claim 20, Kern teaches a data backup and recovery system according to claim 17 and wherein said at least one data recovery device retrieves said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 21, Kern teaches a data backup and recovery system according to claim 18 and wherein said at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 22, Kern teaches a data backup and recovery system according to claim 21 and wherein said network is a private network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 23, Kern teaches a data backup and recovery system according to claim 21 and wherein said network is a public network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 24, Kern teaches a data backup and recovery system according to claim 18 and wherein at least part of said data communications is communicated from said data

communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 25, Kern teaches a data backup and recovery system according to claim 17 wherein said at least one data recovery device retrieves both said control information and said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 26, Kern teaches a data backup and recovery system according to claim 25 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 27, Kern teaches a data backup and recovery system according to claim 26 and wherein said network is a private network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 28, Kern teaches a data backup and recovery system according to claim 26 and wherein said network is a public network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 29, Kern teaches a data backup and recovery system according to claim 25 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 30, Kern teaches a data backup and recovery system for use with at least one server interconnected with at least one storage device, said data backup and recovery system (column 3, lines 35-40; column 9, lines 21-37) comprising: at least one data recovery device (column 4, lines 40-45); at least one data recovery storage device associated with and controlled by said at least one data recovery device (column 4, lines 11-13, 29-45); and data communication monitors for providing to said at least one data recovery device at least control information bearing an order stamp regarding data communications between corresponding ones of said at least one server and said at least one storage device (column 4, lines 40-45; column 5, lines 29-32), said at least one data recovery device being operative to receive said at least control information and to store data on said at least one data recovery storage device in parallel and not requiring that the data be received by said at least one data recovery device in a given order (column 5, lines 39-42; column 7, lines 12-35).

As per claim 31, Kern teaches a data backup and recovery system according to claim 30 and wherein said data communication monitors are located other than only at said at least one storage device (column 4, lines 29-61).

As per claim 32, Kern teaches a data backup and recovery system according to claim 30 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 33, Kern teaches a data backup and recovery system according to claim 31 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 34, Kern teaches a data backup and recovery system according to claim 30 and wherein said at least one data recovery device is operative to receive said at least control information and to store data on said at least one data recovery storage device in parallel (column 4, lines 19-22).

As per claim 35, Kern teaches a data backup and recovery system according to claim 30 and wherein said data communications comprise data updates (column 3, lines 30-41).

As per claim 36, Kern teaches a data backup and recovery system according to claim 30 and wherein said reconstruction of a representation of said data communications at a given earlier time guarantees that if the order stamp of a first update is smaller than the order stamp of a second update, the second update is not stored on said at least one data recovery storage device unless the first update is stored on said at least one data recovery storage device (column 7, lines 12-35).

As per claim 37, Kern teaches a data backup and recovery system according to claim 30 and wherein said data communication monitors are associated with individual ones of said at least one server (column 4, lines 29-45).

As per claim 38, Kern teaches a data backup and recovery system according to claim 30 and wherein said data communication monitors are associated with network elements of a storage area network (column 5, lines 20-21; column 9, lines 21-36; column 4, lines 29-45).

As per claim 39, Kern teaches a data backup and recovery system according to claim 30 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a network (column 5, lines 20-21; column 9, lines 21-36; column 4, lines 29-45).

As per claim 40, Kern teaches a data backup and recovery system according to claim 39 and wherein said network is a private network (column 5, lines 20-21; column 9, lines 21-36; column 4, lines 29-45).

As per claim 41, Kern teaches a data backup and recovery system according to claim 39 and wherein said network is a public network (column 5, lines 20-21; column 9, lines 21-36; column 4, lines 29-45).

As per claim 42, Kern teaches a data backup and recovery system according to claim 30 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a storage area network (column 4, lines 29-45).

As per claim 43, Kern teaches a data backup and recovery system according to claim 30 wherein said data communication monitors provide at least part of said data communications to said at least one data recovery storage device other than via said at least one data recovery device (column 3, lines 33-36; column 2, lines 58-60).

As per claim 44, Kern teaches a data backup and recovery system according to claim 30 and also comprising at least one LOG storage device wherein said at least one LOG storage device comprise at least control information bearing a time mark regarding data communications between corresponding ones of said first plurality of servers and said plurality of storage devices via said storage area network (column 4, lines 46-61).

As per claim 45, Kern teaches a data backup and recovery system according to claim 44 and wherein said data communication monitors also store at least part of said data communications to said at least one LOG storage device (column 4, lines 46-61).

As per claim 46, Kern teaches a data backup and recovery system according to claim 45 and wherein said data communications stored to said at least one LOG storage device comprises data updates sent by said first plurality of servers to said second plurality of storage devices (column 4, lines 46-61).

As per claim 47, Kern teaches a data backup and recovery system according to claim 44 having said at least one storage device LOG such that if either said control information or said data communications or both are prematurely erased from said at least one data recovery device due to a failure or other event, said at least one data recovery device restores either said control information or said data communications or both from said at least one storage device LOG (column 5, lines 53-60).

As per claim 48, Kern teaches a data backup and recovery system according to claim 47 wherein said at least one data recovery device resumes its activities with said restored data from said at least one storage device LOG (column 5, lines 53-60).

As per claim 49, Kern teaches a data backup and recovery system according to claim 46 wherein said at least one data recovery device retrieves said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 50, Kern teaches a data backup and recovery system according to claim 47 and wherein said at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 51, Kern teaches a data backup and recovery system according to claim 50 and wherein said network is a private network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 52, Kern teaches a data backup and recovery system according to claim 50 and wherein said network is a public network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 53, Kern teaches a data backup and recovery system according to claim 47 and wherein at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 54, Kern teaches a data backup and recovery system according to claim 46 wherein said at least one data recovery device retrieves both said control information and said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 55, Kern teaches a data backup and recovery system according to claim 54 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 56, Kern teaches a data backup and recovery system according to claim 55 and wherein said network is a private network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 57, Kern teaches a data backup and recovery system according to claim 55 and wherein said network is a public network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 58, Kern teaches a data backup and recovery system according to claim 54 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 5, lines 20-21; column 4, lines 29-45).

As per claim 60, Kern teaches a data backup and recovery system according to claim 1 and wherein said reconstruction comprises employing said at least one data backup and recovery system as at least one of said at least one server and said at least one storage device (column 4, lines 6-45; column 9, lines 31-34).

As per claim 61, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one server and said at least one storage device are interconnected via a local area network (LAN) (column 4, lines 40-45; column 9, lines 21-36).

As per claim 62, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one server and said at least one storage device are interconnected via a storage area network (SAN) (column 4, lines 40-45; column 9, lines 21-36).

As per claim 63, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one storage device is a network attached storage (NAS) device (column 4, lines 40-45; column 9, lines 21-36).

As per claim 64, Kern teaches a data backup and recovery system according to claim 61 and wherein said at least one data communication monitor monitors data communications between said at least one server and said at least one storage device over said LAN (column 4, lines 40-45; column 9, lines 21-36).

As per claim 65, Kern teaches a data backup and recovery system according to claim 62 and wherein said at least one data communication monitor monitors data communications between said at least one server and said at least one storage device over said SAN (column 4, lines 40-45; column 9, lines 21-36).

As per claim 66, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one server comprises said at least one data communication monitor (column 4, lines 6-45).

As per claim 67, Kern teaches a data backup and recovery system according to claim 1 and wherein said at least one storage device comprises said at least one data communication monitor (column 4, lines 6-45).

As per claim 68, Kern teaches a data backup and recovery system according to claim 62 and wherein said SAN comprises said at least one data communication monitor (column 4, lines 6-45).

As per claim 69, Kern teaches a method for data backup and recovery for use with at least one server interconnected with at least one storage device (column 3, lines 35-40; column 9, lines 21-36), the method comprising: providing at least one data recovery device (column 4, lines 40-45); providing at least one data recovery storage device associated with and controlled by said at least one data recovery device (column 4, lines 11-13, 29-45); and providing at least one data

communication monitor operative to perform: monitoring the data communication between said at least one server and said at least one storage device; creating at least control information bearing an order stamp regarding said data communications between corresponding ones of said at least one server and said at least one storage device (column 4, lines 40-45; column 5, lines 29-32); and sending said monitored data communications and said control information to said at least one data recovery device, said at least one data recovery device responding to said at least said control information in a manner which enables reconstruction of a representation of said data communications at a given earlier time but not requiring that said sending said monitored data communications and said control information to said at least one data recovery device be in a given order or stored on said at least one data recovery storage device in a given order (column 5, lines 39-42; column 7, 12-35).

As per claim 70, Kern teaches a method for data backup and recovery according to claim 69 and wherein said data communication monitors are provided other than only at said at least one storage device (column 4, lines 29-61).

As per claim 71, Kern teaches a method for data backup and recovery according to claim 69 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 72, Kern teaches a method for data backup and recovery according to claim 70 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-61).

As per claim 73, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one data recovery device is operative to receive said at least control

information and to store data on said at least one data recovery storage device in parallel (column 4, lines 29-22).

As per claim 74, Kern teaches a method for data backup and recovery according to claim 69 and wherein said data communications comprise data updates (column 3, lines 30-41).

As per claim 75, Kern teaches a method for data backup and recovery according to claim 69 and wherein said reconstruction of a representation of said data communications at a given earlier time guarantees that if the order stamp of a first update is smaller than the order stamp of a second update, the second update is not stored on said at least one data recovery storage device unless the first update is stored on said at least one data recovery storage device (column 7, lines 12-35).

As per claim 76, Kern teaches a method for data backup and recovery according to claim 69 and wherein said data communication monitors are associated with individual ones of said at least one server (column 4, lines 29-45).

As per claim 77, Kern teaches a method for data backup and recovery according to claim 69 and wherein said data communication monitors are associated with network elements of a storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 78, Kern teaches a method for data backup and recovery according to claim 69 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 79, Kern teaches a method for data backup and recovery according to claim 78 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 80, Kern teaches a method for data backup and recovery according to claim 78 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 81, Kern teaches a method for data backup and recovery according to claim 69 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 82, Kern teaches a method for data backup and recovery according to claim 69 wherein said data communication monitors provide at least part of said data communications to said at least one data recovery storage device other than via said at least one data recovery device (column 3, lines 33-36; column 2, lines 58-60)

As per claim 83, Kern teaches a method for data backup and recovery according to claim 69 and also comprising at least one LOG storage device wherein said at least one LOG storage device comprise at least control information bearing a time mark regarding data communications between corresponding ones of said first plurality of servers and said plurality of storage devices via said storage area network (column 4, lines 46-61).

As per claim 84, Kern teaches a method for data backup and recovery according to claim 83 and wherein said data communication monitors also store at least part of said data communications to said at least one LOG storage device (column 4, lines 46-61).

As per claim 85, Kern teaches a method for data backup and recovery according to claim 84 and wherein said data communications stored to said at least one LOG storage device comprises data updates sent by said first plurality of servers to said second plurality of storage devices (column 4, lines 46-51).

As per claim 86, Kern teaches a method for data backup and recovery according to claim 85 such that if either said control information or said data communications or both are prematurely erased from said at least one data recovery device due to a failure or other event, said at least one data recovery device restores either said control information or said data communications or both from said at least one storage device LOG (column 5, lines 53-60).

As per claim 87, Kern teaches a method for data backup and recovery according to claim 86 wherein said at least one data recovery device resumes its activities with said restored data from said at least one storage device LOG (column 5, lines 53-60).

As per claim 88, Kern teaches a method for data backup and recovery according to claim 85 wherein said at least one data recovery device retrieves said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 89, Kern teaches a method for data backup and recovery according to claim 86 and wherein said at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via a network (column 4, lines 29-45; column 9, lines 21-36; column 5, lines 20-21).

As per claim 90, Kern teaches a method for data backup and recovery according to claim 89 and wherein said network is a private network (column 4, lines 29-45; column 9, lines 21-36; column 5, lines 20-21).

As per claim 91, Kern teaches a method for data backup and recovery according to claim 89 and wherein said network is a public network (column 4, lines 29-45; column 9, lines 21-36; column 5, lines 20-21).

As per claim 92, Kern teaches a method for data backup and recovery according to claim 86 and wherein at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 4, lines 29-45; column 9, lines 21-36; column 5, lines 20-21).

As per claim 93, Kern teaches a method for data backup and recovery according to claim 85 wherein said at least one data recovery device retrieves both said control information and said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 94, Kern teaches a method for data backup and recovery according to claim 93 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 95, Kern teaches a method for data backup and recovery according to claim 94 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 96, Kern teaches a method for data backup and recovery according to claim 94 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 97, Kern teaches a method for data backup and recovery according to claim 93 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 98, Kern teaches a method for data backup and recovery for use with at least one server interconnected with at least one storage device (column 3, lines 35-40; column 9, lines 21-37), said method comprising: providing at least one data recovery device (column 4, lines 40-45); providing at least one data recovery storage device associated with and controlled by said at least one data recovery device (column 4, lines 11-13, 29-45); providing at least one data communication monitor operative to perform: monitoring the data communication between said at least one server and said at least one storage device; creating at least control information bearing an order stamp regarding said data communications between corresponding ones of said at least one server and said at least one storage device (column 4, lines 40-45; column 5, lines 29-42); and sending said monitored data communications and said control information to said at least one data recovery device, receiving said at least control information by said at least one data recovery device; and storing said data on said at least one data recovery storage device in parallel and without requiring that the data be received by said at least one data recovery device in a given order (column 5, lines 39-42; column 7, lines 12-35).

As per claim 99, Kern teaches a method for data backup and recovery according to claim 98 and wherein said data communication monitors are located other than only at said at least one storage device (column 4, lines 29-41).

As per claim 100, Kern teaches a method for data backup and recovery according to claim 98 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-41).

As per claim 101, Kern teaches a method for data backup and recovery according to claim 99 and wherein said data communication monitors also provide at least part of said data communications to said at least one data recovery device (column 4, lines 29-41).

As per claim 102, Kern teaches a method for data backup and recovery according to claim 98 and wherein said at least one data recovery device is operative to receive said at least control information and to store data on said at least one data recovery storage device in parallel (column 4, lines 19-22).

As per claim 103, Kern teaches a method for data backup and recovery according to claim 98 and wherein said data communications comprise data updates (column 3, lines 30-41).

As per claim 104, Kern teaches a method for data backup and recovery according to claim 98 and wherein said reconstruction of a representation of said data communications at a given earlier time guarantees that if the order stamp of a first update is smaller than the order stamp of a second update, the second update is not stored on said at least one data recovery storage device unless the first update is stored on said at least one data recovery storage device (column 7, lines 12-35).

As per claim 105, Kern teaches a method for data backup and recovery according to claim 98 and wherein said data communication monitors are associated with individual ones of said at least one server (column 4, lines 29-45).

As per claim 106, Kern teaches a method for data backup and recovery according to claim 98 and wherein said data communication monitors are associated with network elements of a storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 107, Kern teaches a method for data backup and recovery according to claim 98 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 108, Kern teaches a method for data backup and recovery according to claim 107 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 109, Kern teaches a method for data backup and recovery according to claim 107 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 110, Kern teaches a method for data backup and recovery according to claim 98 and wherein at least one of said control information and said data communications is communicated from said data communication monitors to said data recovery device via a storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 111, Kern teaches a method for data backup and recovery according to claim 98 wherein said data communication monitors provide at least part of said data

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communications to said at least one data recovery storage device other than via said at least one data recovery device (column 3, lines 33-36; column 2, lines 58-60).

As per claim 112, Kern teaches a method for data backup and recovery according to claim 98 and also comprising at least one LOG storage device wherein said at least one LOG storage device comprise at least control information bearing a time mark regarding data communications between corresponding ones of said first plurality of servers and said plurality of storage devices via said storage area network (column 4, lines 46-61).

As per claim 113, Kern teaches a method for data backup and recovery according to claim 112 and wherein said data communication monitors also store at least part of said data communications to said at least one LOG storage device (column 4, lines 46-61).

As per claim 114, Kern teaches a method for data backup and recovery according to claim 113 and wherein said data communications stored to said at least one LOG storage device comprises data updates sent by said first plurality of servers to said second plurality of storage devices (column 4, lines 46-61).

As per claim 115, Kern teaches a method for data backup and recovery according to claim 114 having said at least one storage device LOG such that if either said control information or said data communications or both are prematurely erased from said at least one data recovery device due to a failure or other event, said at least one data recovery device restores either said control information or said data communications or both from said at least one storage device LOG (column 5, lines 53-60).

As per claim 116, Kern teaches a method for data backup and recovery according to claim 115 wherein said at least one data recovery device resumes its activities with said restored data from said at least one storage device LOG (column 5, lines 53-60).

As per claim 117, Kern teaches a method for data backup and recovery according to claim 114 wherein said at least one data recovery device retrieves said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 118, Kern teaches a method for data backup and recovery according to claim 115 and wherein said at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 119, Kern teaches a method for data backup and recovery according to claim 118 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 120, Kern teaches a method for data backup and recovery according to claim 118 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 121, Kern teaches a method for data backup and recovery according to claim 115 and wherein at least part of said data communications is communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 122, Kern teaches a method for data backup and recovery according to claim 114 wherein said at least one data recovery device retrieves both said control information and said at least part of said data communications from at least one storage device LOG for the purpose of storing said data to at least one data recovery storage device associated therewith in said time ordered manner (column 5, lines 53-60).

As per claim 123, Kern teaches a method for data backup and recovery according to claim 122 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via a network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 124, Kern teaches a method for data backup and recovery according to claim 123 and wherein said network is a private network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 125, Kern teaches a method for data backup and recovery according to claim 123 and wherein said network is a public network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 126, Kern teaches a method for data backup and recovery according to claim 122 and wherein both said control information and said at least part of said data communications are communicated from said data communication monitors to said at least one storage device LOG via said storage area network (column 9, lines 21-36; column 4, lines 29-45; column 5, lines 20-21).

As per claim 128, Kern teaches a method for data backup and recovery according to claim 69 and wherein said reconstruction comprises employing said at least one data backup and recovery system as at least one of said at least one server and said at least one storage device (column 4, lines 40-45; column 9, lines 21-36).

As per claim 129, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one server and said at least one storage device are interconnected via a local area network (LAN) (column 4, lines 40-45; column 9, lines 21-36).

As per claim 130, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one server and said at least one storage device are interconnected via a storage area network (SAN).

As per claim 131, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one storage device is a network attached storage (NAS) device (column 4, lines 40-45; column 9, lines 21-36).

As per claim 132, Kern teaches a method for data backup and recovery according to claim 129 and wherein said at least one data communication monitor monitors data communications between said at least one server and said at least one storage device over said LAN (column 4, lines 40-45; column 9, lines 21-36).

As per claim 133, Kern teaches a method for data backup and recovery according to claim 130 and wherein said at least one data communication monitor monitors data communications between said at least one server and said at least one storage device over said SAN (column 4, lines 40-45; column 9, lines 21-36).

As per claim 134, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one server comprises said at least one data communication monitor (column 4, lines 6-45).

As per claim 135, Kern teaches a method for data backup and recovery according to claim 69 and wherein said at least one storage device comprises said at least one data communication monitor (column 4, lines 6-45).

As per claim 136, Kern teaches a method for data backup and recovery according to claim 130 and wherein said SAN comprises said at least one data communication monitor (column 4, lines 6-45).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 59, 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kern in view of Dunham U.S. Patent 6,269,431.

As per claim 59, Kern teaches a data backup and recovery system according to claim 1 (column 3, lines 35-40; column 9, lines 23-27). Kern does not teach wherein said reconstruction comprises sending said data communications from said at least one data recovery storage device to said at least one storage device. Dunham does teach wherein said reconstruction comprises

sending said data communications from said at least one data recovery storage device to said at least one storage device (column 1, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the backup data recovery process of Dunham to the recovery process of Kern. One of ordinary skill in the art would have been motivated to utilize the backup data recovery process of Dunham to the recovery process of Kern because Dunham teaches the importance of using the consistent data at the secondary data storage in the case of a failure at the primary storage device (column 5, lines 21-25); a likewise desire of Kern (column 2, lines 18-19; column 1, lines 15-18).

As per claim 127, Kern teaches a method for data backup and recovery according to claim 69 (column 3, lines 35-40; column 9, lines 23-27). Kern does not teach wherein said reconstruction comprises sending said data communications from said at least one data recovery storage device to said at least one storage device. Dunham does teach wherein said reconstruction comprises sending said data communications from said at least one data recovery storage device to said at least one storage device (column 1, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the backup data recovery process of Dunham to the recovery process of Kern. One of ordinary skill in the art would have been motivated to utilize the backup data recovery process of Dunham to the recovery process of Kern because Dunham teaches the importance of using the consistent data at the secondary data storage in the case of a failure at the primary storage device (column 5, lines 21-25); a likewise desire of Kern (column 2, lines 18-19; column 1, lines 15-18).

Conclusion


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. McCarthy whose telephone number is (571)272-3651. The examiner can normally be reached on M-F, 9 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

csm
October 28, 2004


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